

Claims

- 1) A panel display comprising:
 - 5 a) a substrate having an array of addressable light emitting devices, the array having a light emitting display side facing in a first direction;
 - b) an input means for inputting an arbitrary image;
 - c) drive circuitry for said array of light emitting devices for driving said light emitting devices to display the arbitrary image;
 - 10 c) electrical connections from said light emitting devices to the drive circuitry, said electrical connections extending from a rear side of the substrate in a second direction opposed to the first direction; and
 - d) said drive circuitry is spaced apart from said array in such a manner that at least one cooling channel is defined between said array and said drive circuitry for extraction of heat from said array and said drive circuitry by passage of a cooling fluid through the cooling channel, wherein the cooling channel is sealed with respect to both the array of addressable light emitting devices, and with respect to the drive circuitry for said array of light emitting devices.
- 20 2) A panel display according to claim 1, wherein the cooling channel is arranged so as to extract heat from said array and said drive circuitry in parallel.
- 3) A panel display according to claim 1, wherein the panel is flat or curved.
- 4) A display according to claim 1, wherein a heat sink is disposed within or adjacent said at least one cooling channel.
- 25 5) A display according to claim 4, wherein the heat sink is disposed in the region of the rear side of said array of light emitting devices opposite to said display side.

- 6) A display according to claim 1, wherein said light emitting devices comprise semiconductor light emitting devices.
- 7) A display according to claim 6, wherein said light emitting devices comprise a plurality of Light Emitting Diodes (LED's) or organic light emitting devices (OLED's).
- 8) A display according to claim 1, wherein said light emitting devices are packaged for environmental protection.
- 9) A display according to claim 8, wherein said encapsulation comprises, at least over a working area of the display side, a substantially transparent material.
- 10) A display according to claim 4, wherein said heat sink comprises a heat transporting plate having holes defined therein through which said electrical connections pass.
- 11) A display according to claim 10, wherein said heat sink comprises a metallic material and electrical insulation is provided between said electrical connections and said heat sink.
- 12) A display according to claim 1, wherein said cooling fluid comprises a gas or a liquid.
- 13) A display according to claim 1, wherein said cooling fluid is forced or drawn through one or more cooling channels by a fluid propulsion means.
- 14) A tiled display formed from a plurality of flat panel displays according to claim 1, said plurality of displays preferably being juxtaposed and configured to form a unified said tiled display.
- 15) A tiled display according to claim 14, wherein said cooling channels are separated between said plurality of displays forming said tiled display.

16) A tiled display according to claim 14, wherein the cooling channels of a plurality of flat panel displays forming the tile display are connected together to form a cooling circuit.